

Tenneco Minerals Co.—Utah
A Tenneco Company

P.O. Box 2650
St. George, Utah 84770
(801) 673-1606

Wayne Hedley, F91
memo to file



M/053/005

DOGM
MINERALS PROGRAM
FILE COPY

September 15, 1992

HAND DELIVERED

Don Ostler
Executive Secretary
Utah Water Quality Board
Division of Water Quality
288 North 1460 West
Salt Lake City, Utah 84114-4870

Re: Tenneco Minerals Company-Utah's
Goldstrike Mine, Ground Water Quality Discharge
Permit, No. UGW 530001

Dear Mr. Ostler:

This report is in accordance with provisions of Permit No. UGW530001, issued to Tenneco Minerals Company-Utah ("TMCU") for its Goldstrike Heap Leach Gold Mining Operation in the Bull Valley Mountains near St. George, Utah. This permit modified the permit issued to the Goldstrike Mine effective November 21, 1991. We are submitting this letter in connection with our meeting with you and representatives of the Division of Oil, Gas & Mining today for the purpose of reporting recently discovered information and ensuring compliance with the permits and regulations issued by your agency. We also intend to review these matters in light of our permits from the Division of Oil, Gas and Mining and other agencies.

It is important to recognize that, although we describe in this letter several permit-related compliance matters, including some minor past HDPE pad membrane leaks in the margin of Heap Leach Pad No. 1, they did not involve any discharge to the waters of the State of Utah. All of these matters have been corrected. Our investigation indicates these leaks were contained within the liner system and that no process solutions escaped any secondary (top) clay pad liners. Furthermore, well monitoring data for the periods covering the reported incidents show no cyanide above background levels. Also, please note that our review of these matters is continuing.

Don Ostler, Executive Secretary
September 15, 1992
Page 2

The Goldstrike Mine is presently owned by TMCU, which is a wholly-owned subsidiary of Tenneco Inc. The facility was previously owned by Tenneco Minerals Company which was also a wholly-owned subsidiary of Tenneco Inc. As we previously advised your agency, the assets comprising the Goldstrike Mine were transferred from Tenneco Minerals Company to TMCU on May 22, 1992, in connection with an internal reorganization of assets of Tenneco Minerals Company in anticipation of the sale of the stock of that company to Solvay America, Inc. This transaction was completed on May 27, 1992. In connection with that reorganization and sale, there were various personnel changes at TMC and at the Goldstrike Mine, as certain personnel left to seek other employment or continue their employment with the former Tenneco Minerals Company, which is now renamed Solvay Minerals Company.

As the President of TMCU, I assumed in late June, 1992, managing responsibility for Tenneco's precious metals business. Mr. James A. Smith is the Mine Manager at the Goldstrike Mine. Future correspondence concerning permits issued by your agency should be directed to him. Further correspondence on this matter should be sent to James Smith at the Goldstrike Mine and to me at the following address:

Valerie Wohlleber, President
Tenneco Minerals Company-Utah
Tenneco Building
P.O. Box 2511
Houston, Texas 77001

It is the established policy of TMCU and Tenneco Inc. to comply fully and in good faith with environmental laws and regulations. The discovery of the matters being reported arose out of Tenneco Inc.'s current consideration of a sale of TMCU. In connection with this anticipated sale, Tenneco Inc. has been conducting a review of TMCU's compliance with its permits. This effort, which is still in progress, has recently resulted in the discovery of certain compliance matters which we are reporting to you at this time.

The matters we are reporting involve (i) the design of the leak detection collection points in the two sumps of Heap Leach Pad No. 2, (ii) a spill of a small amount of process solution on exposed clay near Sump #1, Pad No. 1 and three incidents of fluid detection in the leak detection sump of Sump #1, Pad No. 1; (iii) recordkeeping and reporting with respect to these matters; and (iv) our corrective actions and plans to deal with these matters, to correct any past deficiencies, and ensure compliance with the applicable permits and regulations.

Don Ostler, Executive Secretary
September 15, 1992
Page 3

There have also been a few minor incidents of localized leaks through the HDPE membrane at the margin of Pad No. 1 that we are not certain we are obligated to report. These leaks did not result in the appearance of recoverable fluids in a leak detection bulb or sump. These are described in Attachment I to this letter. In light of early discussions between your staff and our mine manager and consultant relating to design and reporting principles of the Division of Water Quality, we do not believe such leaks were reportable; however, we are reporting them now to demonstrate the scope of our current review.

We believe also that the pad systems currently are in compliance. Current monitoring of pad leak detection systems shows no leakage from the pad systems.

Our specific reports are as follows:

1. Leak Detection Systems in Sumps No. 2 and 3. We recently discovered (September 1, 1992) that the configurations of the leak detection collection points in the sumps for Heap Leach Pad No. 2 (Sumps #2 and #3) were not constructed in accordance with the previously approved design originally submitted to your agency on November 13, 1989, and modified on February 8, 1990. We believe that these collection systems were modified into their nonconforming configurations during the replacement of the concrete sump boxes. Sump #2 was replaced about August 1991. Sump #3 was replaced in January, 1992. We understand that the sump boxes were replaced with the approval of your agency, but given the personnel changes at the mine, we have no indication that your agency was advised of the changes to the original design of the leak detection collection points in these two sumps.

Promptly following the recent discovery, we directed that the standpipes for these two sumps be excavated and reconstructed in accordance with the approved design and that the surrounding soil be investigated for possible contamination. Soil samples were taken by JBR Consultants from the area below the leak detection standpipes of both sumps and sent for analysis of cyanide, gold, and other metals. Data from that sampling are submitted in Attachment II to this letter. The analyses indicate no detectable levels of cyanide or gold. The levels of other metals further support our conclusion that there has not been a release of leach solution.

Specifically, we discovered that the leak detection standpipe on Sump #2 lacked any collection tube extending below the tee connection ("tee") as shown on the approved drawing. Instead, the bottom of the standpipe to the surface was connected to the perforated detection pipe under the sump and also to a

Don Ostler, Executive Secretary
September 15, 1992
Page 4

small diameter pipe which drained into the secondary containment pipe (for the pregnant solution lines) which empty onto Pad No. 2. This small diameter pipe was not part of the approved design for the leak detection standpipe. In addition, we discovered that the leak detection standpipe on Sump #3 also had a drainage line which drained from the tee to the secondary containment pipe from Pad No. 2. The bottom of the tee lacked any extension or plug on its bottom end.

In both instances, the modified system was capable of detecting any significant leaks. Leaks would have appeared at the end of the Pad No. 2 secondary leach solution containment pipe for these sumps which empties onto Pad No. 1. Periodic monitoring by Goldstrike personnel detected no leaks from these sumps during the period since the erroneous installations, including since the final corrective installations.

Both of these systems have been reconstructed to conform to the permit drawings and the drainage lines disconnected. Both systems were equipped with downward extending collection tubes to make the systems consistent with the previously approved design. Monitoring of these systems since September has revealed no liquids.

2. Past Fluid Detection Events, Pad No. 1 Collection Ditch and Sump. We also recently discovered the following matters which have been corrected but may not have been previously reported to your agency:

A. On one occasion some time during the second quarter of 1991, while work was being conducted around Sump #1, Pad No. 1, when the HDPE membrane was peeled back, the pump withholding process solution from the sump failed and allowed several gallons of solution to contact the exposed clay adjacent to the sump. During the morning after this event, all visible solution was removed.

B. Small quantities of fluid, believed to be rain water resulting from heavy rainfall onto the lined leak detection area north of Sump #1 of Goldstrike Mine's Pad No. 1, were from time to time collected in the perforated pipe leak detection apparatus beneath that sump. Few records of volume or analyses have been found; however, the greatest volume was 3780 mls detected on July 19, 1991, and the highest recorded cyanide concentration was 5.0 PPM detected on July 20, 1991. A new sump was installed in mid-August, 1992, together with a new liner for the ditch connected to that sump. More recently, the liner for the leak detection area suspected to have leaked was also replaced.

Don Ostler, Executive Secretary
September 15, 1992
Page 5

C. In June, 1991, a nighttime rain caused a brief flow of solution to enter an inspection slit in the HDPE membrane about thirty feet northwest of Sump #1, Pad No. 1. This slit was repaired the following morning.

3. Recordkeeping and Reporting. In our review, we discovered that records on these events either do not exist or are incomplete and may be inaccurate. We are continuing to investigate the existence of records of these events. We recognize that under applicable provisions of the construction permits and ground water discharge permits, daily inspection and observation of the leak detection systems are required, and a record of any observed process solution leaks is required to be maintained, evaluated and reported. Based on the existing records and information we have obtained from remaining employees, it appears that previous quarterly reports submitted to your agency during the periods of time in which these events occurred may be deficient or inaccurate with respect to these events. As outlined below, we are taking corrective action to ensure compliance with our recordkeeping and reporting obligations. Specifically, we will correct any past deficiencies or inaccuracies to the extent possible, and we will keep your agency informed fully of the results of our continuing investigation and corrective actions.

4. Current Plans and Corrective Action. At the present time, we believe that all leak detection systems for the pads are in compliance and functioning properly. Daily monitoring of these systems continues to confirm that there are no leaks of process solutions from the pads.

As a result of the discovery of these events, we are undertaking an immediate program to reacquaint key mine personnel with the applicable legal requirements and provisions of the Groundwater Discharge Permit, with specific reference to those provisions relating to inspections, recordkeeping and reporting.

Tenneco has hired JBR Consultants to assist in the investigation of these events and to develop a plan, as necessary, for corrective action. As indicated above, the leak detection collection systems on the sumps of Pad No. 2 were immediately repaired and reconfigured to a conforming design following discovery, and samples were collected by JBR and analyzed with a favorable result. With respect to the past fluid detection events in the Sump #1 area of Pad No. 1, JBR is preparing a plan for additional investigation and for any additional appropriate corrective action. We believe that this plan will be completed shortly, following which we will promptly submit a copy to your agency and other agencies, as appropriate.

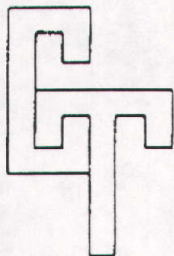
Attachment I to
September 15, 1992 Tenneco Minerals Company- Utah
Letter from V.L. Wohlleber to Mr. Don Ostler,
Utah Division of Water Quality

The following HDPE membrane leaks associated with Pad #1, Goldstrike Mine occurred only in the margin of the Pad and are believed not to have resulted in appearance of liquids in any pad leak detection bulb or sump:

1. From time to time in or around the Spring of 1992, apparent rain water (resulting from heavy rains) was found to flow for short intervals from the area of the unloaded crushed rock overliner adjacent to cell #4 of Goldstrike Pad #1 under the heavy duty polyethylene (HDPE) membrane under the overliner and down the ditch (beneath its HDPE liner) for a short distance. These leaks were found and repaired.
2. During a period of six weeks beginning in February 1991, leaks of pregnant solution were detected under the HDPE liner of Goldstrike Pad #1 south of Sump #1. The leaks were found to be the result of excavation of ore that had fallen on to the liner and were repaired by mid-March 1991.
3. During a period of three weeks beginning about June 13, 1991 pregnant solution was found to be leaking in the off-flow ditch of Goldstrike's Pad #1 (an HDPE-lined pregnant solution ditch) north and partially adjacent to Sump #1. A PVC pipe was installed into the ditch beneath the HDPE liner to drain solution on to a HDPE-lined area. Two weeks of repairs occurred, including regrading the referenced ditch, after which some solutions were detected. During this period, 75-100 mls of solution of a concentration said to be less than 20 PPM were collected.

From time to time "pin-hole" leaks in exposed HDPE membranes are detected and repaired.

The above matters remain under review by TMCU and Tenneco Inc.



CHEMTECH

ANALYTICAL LABORATORY

6100 S. STRATLER
MURRAY, UTAH 84107
PHONE (801) 262-7299
FAX (801) 262-7378

DATE: 9-8-92

TO: JBR Consultants
8160 S. Highland Drive STE A-4
Sandy, Utah 84093

SAMPLE ID: Lab #U081362 - Tenneco Sumps. TENN-01, Samp. 9-1-92
DATE SUBMITTED: 9-2-92

CERTIFICATE OF ANALYSIS

PARAMETER

DETECTED

Cyanide as CN (T), mg/Kg

<.2

WAD Cyanide as CN, mg/Kg

<.2

Gold as Au, mg/Kg

<.5

Mercury as Hg, mg/Kg

0.7

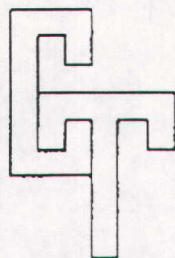
Silver as Ag, mg/Kg

<.5

Zinc as Zn, mg/Kg

64.5

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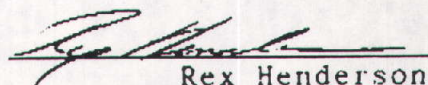
DATE: 9-8-92

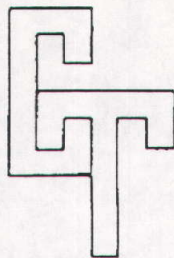
TO: JBR Consultants
8160 S. Highland Drive STE A-4
Sandy, Utah 84093

SAMPLE ID: Lab #U081363 - Tenneco Sumps, TENN-02, Samp. 9-1-92
DATE SUBMITTED: 9-2-92

CERTIFICATE OF ANALYSIS

<u>PARAMETER</u>	<u>DETECTED</u>
Cyanide as CN (T), mg/Kg	<.2
WAD Cyanide as CN, mg/Kg	<.2
Gold as Au, mg/Kg	<.5
Mercury as Hg, mg/Kg	0.7
Silver as Ag, mg/Kg	<.5
Zinc as Zn, mg/Kg	102


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DATE: 9-8-92

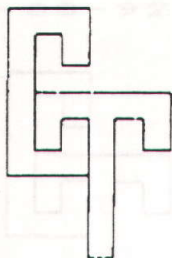
TO: JBR Consultants
8160 S. Highland Drive STE A-4
Sandy, Utah 84093

SAMPLE ID: Lab #U081364 - Tenneco Sumps. TENN-03, Samp. 9-1-92
DATE SUBMITTED: 9-2-92

CERTIFICATE OF ANALYSIS

<u>PARAMETER</u>	<u>DETECTED</u>
Cyanide as CN (T), mg/Kg	<.2
WAD Cyanide as CN, mg/Kg	<.2
Gold as Au, mg/Kg	<.5
Mercury as Hg, mg/Kg	0.3
Silver as Ag, mg/Kg	2.5
Zinc as Zn, mg/Kg	58.0


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DATE: 9-8-92

TO: JBR Consultants
8160 S. Highland Drive STE A-4
Sandy, Utah 84093

SAMPLE ID: Lab #U081365 - Tenneco Sumps, TENN-04, Samp. 9-1-92
DATE SUBMITTED: 9-2-92

CERTIFICATE OF ANALYSIS

PARAMETER

DETECTED

Cyanide as CN (T), mg/Kg

<.2

WAD Cyanide as CN, mg/Kg

<.2

Gold as Au, mg/Kg

<.5

Mercury as Hg, mg/Kg

0.4

Silver as Ag, mg/Kg

<.5

Zinc as Zn, mg/Kg

24.0

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